

Swiss Road History between State Consolidation and Private Interests

The development of the road infrastructure in Switzerland between 1740 and 1850¹

Benjamin Spielmann

University of Bern

Section of Economic, Social and Environmental History

benjamin.spielmann@hist.unibe.ch

Abstract

This paper discusses major development steps in the emergence of the modern road network in Switzerland. It considers connections between state authorities and actors from the private sector. Before the Swiss Federal State was founded in 1848, the country consisted of regional and largely independent territories with only few institutional bonds between them. Neither a strong central political instance nor a comprehensive master plan existed, yet these regional governments together with foreign states, managed to gradually create a road network. The road network connected major Swiss towns and allowed access to foreign transportation systems. This paper argues that this was possible based on mutual economic interests of regional and foreign states as well as the private sector: The states were interested in tolls and military use, and the private sector needed roads for efficient freight transportation that generated fiscal revenue. This coaction between public and private actors was at the expense of local societal structures that needed to cope with large scale economic interests. However, road projects contributed to consolidate regional state structures that were essential to passing road laws, incorporating technical knowledge and expanding road networks on a more regional level.

1. Introduction

Roads are a crucial part of the present-day transportation and mobility system of which transportation of passengers accounts for a huge part.² However, this paper argues that in the 18th and 19th centuries, freight traffic was dominant on regional and supra-regional roads, and it that was decisive when it came to building and renewing roads. New routes followed homogenous building standards by avoiding steep inclines and curvy courses.³ Well-built trunk roads extended scopes of action for traders and merchants while challenging

¹ This paper is part of a Swiss National Science project called "Mobility in the Swiss Federal State (1848-2015): A new perspective on transport history." I am grateful to Christian Rohr, Ueli Haefeli, Hans-Ulrich Schiedt and Markus Sieber for their support and insightful comments, http://www.hist.unibe.ch/forschung/forschungsprojekte/mobilitaet_im_schweizerischen_bundesstaat/index_ger.html (12.09.2016).

² The Swiss road traffic census of 2005 revealed that 84.3% of all counted vehicles were automobiles, <http://www.portal-stat.ad-min.ch/ssvz/docs/208-0500.pdf>: 5 (12.09.2016).

³ Vgl. Schiedt 2016: 162.

local societies that faced competition and new frame conditions. However, more traffic meant more tolls for regional authorities. Building and maintaining roads required tremendous organizational and financial skills that reached far beyond regional geographies and powers of traditional territorial governments. Road projects were therefore strongly interdependent in the development of regional state structures. Even though roads are connected with economic, political and societal aspects, they have not yet received the merit they deserve in historical research.⁴

This paper discusses the building and expansion of the road network in the 18th and 19th century in Switzerland with respect to central political and economic actors. Up until 1848 and most of the time, Switzerland was an alliance of loosely connected regional states, the cantons, which strong political autonomy. Joint road construction projects on a supra-regional level between these states were therefore difficult and rare.⁵ The thesis will state that the needs of freight traffic shared by both state and economic actors were in the foreground and not a central political institution or a comprehensive masterplan. State actors were comprised of regional authorities in Switzerland as well as foreign governments, whereas economic actors include parties in direct connection with the transportation business. Because shipping on water and railways was also important for freight traffic, those means of transportation will be examined as well. However, the question if road construction projects were about creating completely new land connections or only renewing existing roads will be excluded, nor will work or organizational processes of the regional state administrations be discussed. The goal is to trace some evolutionary milestones of the emergence of the road network as a whole.

The paper examines three phases suggested by Hans-Ulrich Schiedt in 2007. Between 1740 and 1780, crucial transit routes were established in the Swiss Plateau, thereby connecting all major towns. From 1800 to 1840, important alpine pass roads were built, and in the 1830s and 1840s, the cantons expanded the main road network.⁶ The next three chapters will discuss these developments and close with a short conclusion. For a complete and consistent Swiss road history, all Swiss regions would need to be considered in terms of historical processes and characteristics. However, for a rough overview, which is at the core of this paper, a selection of regions will be taken into consideration with a geographical division into Swiss Plateau and mountain sections. This investigation relies strongly on research literature available in regional and local studies.⁷ Henceforth, because historical research results for every part of the country do not exist, not all aspects of Swiss road history in the 18th and 19th century will be represented. Consequently, the findings should not be applied to regions not considered, and universal conclusions need to be treated with great care.

⁴ Vgl. Dienel, Schiedt 2010: 8. Merki; Schiedt 1999: 11-13; Schiedt 1999b: 17.

⁵ Vgl. Schiedt 2007: 48-49.

⁶ Vgl. Schiedt 2007: 42-43.

⁷ Vgl. Schiedt 1999b: 25.

2. Transit routes in the Swiss Plateau

The construction of important transit routes started in the 17th century at the latest. A point of culmination was between 1740 and 1780, when trunk roads were built to neighboring countries and between larger Swiss towns. The framework for the main orientation was the east-west connection between Lake Geneva and Lake Constance. In total, about 1,000 kilometers of roads were created and renewed in this period.⁸ The largest part of the road work was done with compulsory labor under the supervision of the state authorities.⁹

Bern took a leading part in the road construction phase of the 18th century. From 1706 to 1711, the road to Zurich was already modernized.¹⁰ Crucial for further road projects was revenue from commercial trade.¹¹ From 1740 on, the authority renewed the road network with connections to larger towns such as Zurich, Basel, Geneva, Lausanne, Solothurn and Thun.¹² Engineer Friedrich Gabriel Zehender played a key role because of his technical expertise he had acquired in France, where new methods in road construction were developed in the 17th century.¹³ In the west, Bern built the road to Yverdon from 1745 to 1760 to facilitate the transportation of salt coming from France.¹⁴ In the west, the small towns in the Aargau region, Lenzburg and Brugg, were places where transit traffic from Zurich, the region around Lake Constance and Germany entered Bernese territory.¹⁵ Hence, it seemed appropriate for the Bern territorial government to renew the roads to these points for toll reasons. The fiscal effects were as expected: Revenue from tolls exceeded the costs for road construction and maintenance until the beginning of the 1830s, when the expenses for road construction projects started to rise.¹⁶ Around 1800, the Bernese territory was equipped with a well-established road network ranging from Lake Geneva to the Aargau, near Zurich.¹⁷ An important prerequisite was the Bern state that did not only pursue fiscal goals. A large and financially strong territorial state of the 18th century, Bern displayed its power and assertiveness with new roads.¹⁸ With prisoners and parishioners in compulsory labor doing a great deal of the road work, spending by the state government could be kept low.¹⁹ Geneva could settle turf wars with France and Savoy in the middle of the 18th century. This allowed the construction of important trade routes, one of which was built in 1756 along the shore of Lake Geneva.²⁰ Zurich was a powerful authority, similar to Bern, and was involved in road projects in the 18th century as well. Among

⁸ Schiedt 2007: 42.

⁹ Ibid: 50.

¹⁰ Baumann 1924: 96.

¹¹ Flückiger Strebel; Schiedt 2011: 9.

¹² Vgl. Bavier 1878: 31; Baumann 1924: 105.

¹³ Flückiger Strebel; Schiedt 2011: 8-9.

¹⁴ Inventar historischer Verkehrswege (IVS) Vaud 2003: 12.

¹⁵ Baumann: 1924: 123.

¹⁶ Vgl. Flückiger Strebel; Schiedt 2011: 17.

¹⁷ Ibid: 5, 11.

¹⁸ The showpiece was the Neue Aargauerstalden near the city of Bern that was created as a splendid avenue from 1750 to 1758. Vgl. Flückiger Strebel; Schiedt 2011: 8-9.

¹⁹ Flückiger Strebel; Schiedt 2011: 11, 13, 42.

²⁰ IVS Genève 2007: 13-14.

other routes, it renewed the road coming from the Aargau and leading to the city of Zurich as well as the road going to St. Gallen and Frauenfeld in the eastern part of Switzerland. Eight years later, a new land connection reached Lake Constance. The section between Zurich and St. Gallen had already been built in the 17th century.²¹ With these measures, the Zurich state established a continuous road connection from Lake Constance to the Aargau. However, because the authority of Zurich did not integrate the new technical and constructional methods of road building at once, the extent of road projects was not as large as in Bern.²² However, tolls revenues were also important means for Zurich for construction projects.²³ In areas with navigable waterways, such as the region around Schaffhausen or Aargau, road construction activities were lower, because the rivers Aare, Reuss and Rhein were crucial transportation routes.²⁴ However, with the growing road network, commercial inland navigation on rivers started to decline in the second half of the 18th century.²⁵ Basel extended its main road network in the 18th century and was connected via modernized roads with towns such as Neuchâtel, Brugg, Luzern and Bern.²⁶ Special consideration was given to the passage over the Jura mountains because it promised tolls from freight traffic between Basel and Zurich—together with Geneva the three most populated Swiss cities around 1800.²⁷ Hence, from 1777 to 1778, a road passage over the Bözberg mountain was established. Basel merchants and traders played an important role in this road project because they urged to build this road.²⁸ The participation of supra-regional actors in infrastructure projects was a repeating pattern in the beginning of the 19th century, when the renewal of the alpine pass roads took place. Between 1758 and 1761, the road between the city of Lucerne and Bernese territory was modernized with compulsory labor.²⁹ More than 8,000 workers and almost 6,000 draft animals were involved in this project, which shows the dimensions and needed efforts of such an infrastructure construction site.³⁰ Lucerne also used prisoners in road construction.³¹

At the end of the 18th century, a road network was established in the Swiss Plateau that covered the east-west axis from Lake Geneva to Lake Constance as well as connections between major towns. The road network was erected with the participation of prisoners and compulsory laborers. Basel ensured itself a connection to the road system in the Swiss Plateau. Navigable rivers started to lose their function as transport routes due to the competition of the new roads. Two motives for building transit roads in the 18th centuries can be identified: First, the state authorities were interested in tolls, which brought revenue to the treasuries that

²¹ Bavier 1878: 31-34, 62.

²² Vgl. Barraud Wiener, Simonett 1990: 417.

²³ Vgl. Ibid: 421.

²⁴ Bavier 1878: 33, 37.

²⁵ Vgl. Baumann 2010: 145-146.

²⁶ Bavier 1878: 45.

²⁷ Bergier 1990: 44

²⁸ Vgl. IVS Baselstadt 2004: 19; Baumann 1924: 123.

²⁹ Schiedt 2010a: 13.

³⁰ Schiedt 1999a: 30.

³¹ Schiedt 2010a: 18.

could even surpass state expenses in road construction. The Bern state also used prestigious roads to represent its power. Second, traders and merchants were interested in well-built and maintained roads for transporting their goods, which is evident in their financial involvement in mountain pass road projects.

3. Delays of road construction in the Alp regions

The alpine areas of Switzerland were not affected by the road construction measures to the same extent as the Swiss Plateau. However, in Schwyz state, the inner and outer parts of the territory were linked with new roads in the 1760s and 1780s. Furthermore, a road connection between the cantons of Zurich and Glarus was established. But beyond these projects, the road system of Schwyz did not see any improvements in the 18th century. Henceforth, the road quality was very poor on the eve of the new century. Schwyz had therefore only limited possibilities to let its road system carry heavy carriages or coaches.³² Modernization of the road network by the regional state did not seem to be a high priority for the public, as the regional political assemblies rejected efforts in state strengthening at the end of the 18th century.³³ The transit connection over the Gotthard pass had already been modernized in the 17th century. It was an important north-south route and held supra-regional relevance for Central Switzerland and the Ticino.³⁴ Even though it was previously modernized, this road was not fully traversable by heavy vehicles and was more of a mule track in the 18th century.³⁵ Critical sections were the Devil's Bridge over die Schöllenen Gorge and parts in the Ticino.³⁶ In Central Switzerland, important routes led to lakeside towns from whence transportation continued on waterways. These lakes did not benefit from renewed roads along their shores, having at most mule tracks and footpaths.³⁷ Lake Lucerne was especially unrivalled by land routes—the whole Gotthard pass transit as well as local transport operations were executed over this waterway.³⁸ In Grisons (Graubünden), the Reichsstrasse or Deutsche Strasse was established between 1780 and 1786 and led from the city of Chur to the borders of Liechtenstein.³⁹ In Grisons as in Schwyz, attempts to empower the territorial administration with respect to road politics failed because local juridical communities remained very strong, even after the formal transformation of the area to the canton in 1803.⁴⁰

During the 18th century, efforts for road construction in the Swiss mountain regions were limited, but at the beginning of the 19th century, it gathered steam with the modernization of pass roads over the Swiss Alps. The first big project was the passage over the Simplon pass. Napoleon Bonaparte depended on a modernized

³² Vgl. Hoppe 2005: 223.

³³ Vgl. Schiedt 2014: 15.

³⁴ Vgl. Reinhard 1903: 116; Nething 1995: 53.

³⁵ Hoppe 2005: 224.

³⁶ Muheim 1945: 40; Bavier 1878: 40-42.

³⁷ Schiedt 2014: 10.

³⁸ Dubler 1983: 265.

³⁹ Schiedt; Stirnimann 2015: 21.

⁴⁰ Vgl. Barraud Wiener, Simonett: 428.

road network to move soldiers and material. The Simplon pass was highly strategic because it was the shortest connection between Paris and Milan.⁴¹ The costs of transforming this path into a military road for vehicle use were borne by the French and Italian republics. The Valais as the riparian region in Switzerland did not have to provide funds for the project. However, it used compulsory labor and was bound by contract to establish and maintain a horse-drawn post service.⁴² The pass road over the Simplon mountain was built between 1800 and 1805 and served as a model for other mountain road passes in Switzerland. In the following years, navigable road passes over the Splügen, San Bernardino, Gotthard, Julier and Maloja passes were created.⁴³ The roads over the Splügen and San Bernardino mountains were renewed with financial help from the Austrian and Italian governments and the transport business from Chur.⁴⁴ The foreign countries were allowed by contract to introduce freight—especially foodstuffs—into the Grisons territory on the newly built road.⁴⁵ The transport business tried to gain access to the transportation business in the Grisons valley, which was dominated by locally transportation cooperatives (Porten). Although the state government in Grisons was still weak when the Splügen and San Bernardino road passes were built, it gained power and legitimacy with these large infrastructure projects. Hence, the Grisons government alone financed the renewal of the Julier road pass, finished in 1826.⁴⁶ Furthermore, the legal regulation and unification of the regional transportation business also resulted from the consolidation of the state structures.⁴⁷ The market opening of the Grisons transportation business took place in 1835—from then on, everybody, including those from outside the Grisons, could offer transportation services. The power of the Porten got weakened as many hemmers and carters in the valleys were employed by larger transportation companies from outside and became dependent on their wages.⁴⁸ The Gotthard road pass was modernized from 1820 to 1830. Because the riparian regions could not supply the necessary financial means for this project, other authorities such as the cantons of Basel, Solothurn and Luzern supplied capital.⁴⁹ Construction on the road over the Gotthard pass from the south began in 1804 and ended in 1822. The canton of Ticino modernized its roads at the beginning of the 19th century and extended them within a decade into a network of over 250 kilometers.⁵⁰ Sixteen out of 18 Ticino's main roads were built or renewed in this period.⁵¹ With the building of the Gotthard pass road, a modern transit connection was established from Basel to the Italian border that was supervised and managed collaboratively by the adjacent cantons.⁵² As was the case with the Splügen pass, the outside parties involved

⁴¹ Von Deschwanden 1997: 23.

⁴² Ibid: 27.

⁴³ Schiedt 2007: 42-43.

⁴⁴ Barraud Wiener, Simonett 1990: 428-430; Bavier 1878: 50-51.

⁴⁵ Kraus, Jäger 2013: 9.

⁴⁶ Vgl. Barraud Wiener, Simonett 1990: 428-430; Bavier 1878: 50-51.

⁴⁷ Vgl. Caroni 1979: 89.

⁴⁸ Barraud Wiener, Simonett 1990: 430.

⁴⁹ Vgl. Bavier 1878: 53-54.

⁵⁰ Moor 2004: 37.

⁵¹ Bavier 1878: 107.

⁵² Vgl. Bavier 1878: 55.

in the Gotthard road pass project were also interested in an open transportation market. However, the canton of Uri resisted because it was concerned about the important earnings the sector provided the rural population.⁵³ Only in 1843 was free competition on the Gotthard road pass finally implemented.⁵⁴

Swiss mountain regions were less involved in road projects in the 18th century. Hans-Ulrich Schiedt concluded that these areas lagged compared with regions in the Swiss Plateau for several decades, although developments varied from region to region.⁵⁵ Still, the Gotthard pass road played an important role on the north-south axis. Lake Lucerne was fundamentally important to this transit route and delayed the need for a well-built and expensive road in its vicinity. The weak regional state structures in Swiss mountain regions also impeded the bundling of interests that were important for realization of large, complex infrastructure projects. The empowerment of an interregional political institution was of no particular concern for the public. In the beginning of the 19th century, however, road construction in the mountain regions gained momentum with the construction of alpine road passes. Because major responsibility for establishing a road network in the Swiss Plateau regions lay with regional authorities, the field of participants was extended in the 19th century with the construction of road passes. Foreign states and the actors from the transportation sector took on some of the financial burden, which needs to be seen with their economic and military motives. Large-scale freight transportation together with market-liberal interests opposed local needs that tried to preserve economic structures and operated in distinct geographic proximities.⁵⁶ However, the riparian cantons were unable to build the first alpine pass roads on their own because they were institutionally and financially too weak. Thus, there was a strong connection between the emergence of state structures and the large road projects for both the Swiss Plateau and the mountain region. There was one small difference: Whereas a consolidated regional authority was important in the Swiss Plateau, the formation of regional state structures in the mountain regions was more consecutive with respect to transportation infrastructure projects.

4. Construction of main roads

The first decades of the 19th century saw the emergence of the railway and the steamship as new means of transportation. The steamship ran on Swiss lakes from the 1820s on, whereas the railway appeared only in the 1840s. The steamship replaced the traditional sailing and rowing ships in Switzerland in a long and gradual transition. The railway finally ousted commercial shipping in the 1870s and 1880s.⁵⁷ In the 1830s, general thoughts about railways were given in Zurich and the eastern part of Switzerland. An immediate reason for

⁵³ Muheim 1945: 61-62, 64. Transportation mandates were a crucial part of a peasant's income. Vgl. Schiedt 2005: 8-9.

⁵⁴ Dubler 1983: 172.

⁵⁵ Schiedt 2010b: 118.

⁵⁶ Vgl. Caroni 1979: 99.

⁵⁷ Schiedt 2009: 167-168.

this was the advancement of foreign railway lines to the borders of Switzerland.⁵⁸ The first railway line completely on Swiss soil, however, ran 1847 between Zurich and Baden.⁵⁹

In the 1830s and 1840s, road construction boomed with the establishment of main road networks in the cantons. Within 20 years, around 6,000 kilometers of roads were built, exceeding the building of the transit lines in the 18th century by far. The layout of this road network has largely remained unchanged to the present day.⁶⁰ Already from 1814 on, Bern tackled an area-wide spatial development that also integrated peripheral parts of the canton such as the Bernese Oberland, the Emmental and the Jura mountains into the road network.⁶¹ The showcase was the modernization of the Simmentalstrasse, which started in 1816-17. The goal was facilitation of freight traffic between the Bernese Oberland and the Bernese midlands to inclusion of the greater region of the city of Bern and to foster economic development in the Oberland.⁶² Starting from 1829, the cantonal government employed inspectors who monitored the building and maintenance of the road work. In 1832, 30 such employees and 128 special skilled workers were employed who, together with craftsmen, raised the quality of road construction.⁶³ The cantonal road law of 1834 governed the financing and organization of the construction and the maintenance of roads on the canton level. Roads that merely served transportation needs within the authority of the communities were not considered by cantonal law.⁶⁴ The construction of the Bielersee road from 1835 to 1840 evoked the resistance of the local population because they wanted to hold onto the waterway on the lake. However, the insight that a well-built road on land could ensure a safe and fast way of transportation finally changed people's minds.⁶⁵ In Bern, prisoners were still used in road work, but with ongoing professionalization, their significance started to decline.⁶⁶ The density of the Bernese main road network rose from 80 to 280 kilometers per square kilometers and came henceforth close to the present-day value of 350 kilometers.⁶⁷ The extensive activity of the Bern government in road construction paid off: In 1878, its main road network was comprised of 1,100 kilometers, more than in any other canton in absolute terms.⁶⁸

When the Canton of Geneva was founded in 1815, it gained 150 square kilometers of territory and 16,000 additional inhabitants. Furthermore, it experienced the liberal revolution of 1846. Hence, only toward the middle of the 19th century could development of the main road system gain further attention in Geneva.⁶⁹

⁵⁸ Ein Jahrhundert Schweizer Bahnen 1947: 17.

⁵⁹ Ibid: 8.

⁶⁰ Flury points out the particular path dependency of the traffic infrastructure because it requires vast investments and substantial knowledge. Moreover, the writing-off takes up long periods. Vgl. Flury 2009: 31-32.

⁶¹ Flückiger Strebel, Schiedt 2011: 35.

⁶² Flückiger Strebel, Schiedt 2011: 17.

⁶³ Vgl. Flückiger 2010: 171.

⁶⁴ Flückiger Strebel, Schiedt 2011: 18-19.

⁶⁵ Ibid: 26.

⁶⁶ Ibid: 42.

⁶⁷ Ibid: 29.

⁶⁸ Bavier 1878: 118-119.

⁶⁹ IVS Genève 2007: 14.

Also, with the road law of 1874, Geneva lagged behind other cantons on a jurisdictional level.⁷⁰ In 1810, the road law of Zurich lifted the authority of road construction and maintenance on a cantonal level, which benefited the communities by relieving them of providing money and compulsory labor. However, tolls then also included local carriages. Furthermore, road construction and its organization was professionalized although compulsory labor persisted, but to a lesser extent.⁷¹ The consolidation of road construction on a cantonal level was implemented only after 1830, because previously the canton of Zurich lacked adequate finances, political willpower and administrative knowledge.⁷² The road law of 1833 contributed to clarification of cantonal and communal competencies. In the first half of the 19th century, 33 main road projects were started⁷³ —as many as in no other canton can be shown.⁷⁴ Lake Constance experienced a short-term boom with the emergence of the steamship and the modernization of port infrastructure.⁷⁵ However, commercial navigation on Lake Constance lost relevance with the rise of the railway after 1850.⁷⁶ In the first half of the 19th century, construction of the road between the salt works in Schweizerhalle and the border to the canton of Solothurn took place and was relatively long at 26.4 kilometers.⁷⁷ In the 1830s and 1840s, a modern road over the Hauenstein mountain was built, again with financial support from merchants and traders in Basel.⁷⁸ In 1844, Basel was the first city in Switzerland to be connected to the railroad system from abroad. A year later, a railway station was built within the city walls.⁷⁹ In Central Switzerland, only the cantons of Luzern and Zug participated in the modernization of the main road network in the 1830s and 1840s, whereas the Gotthard pass captured a great deal of attention.⁸⁰ By the 1820s, the main road between Sursee and Aarau was constructed, and as early as in the 1830s, it was modernized and furnished with signposts that implied its use by interregional and alien traffic.⁸¹ The road to Göschenen was completed in 1822.⁸² In 1832, the canton of Lucerne passed a road law, and it specified further regulations a year later.⁸³ From the 1830s on, key roads were established on a municipal level. The systematic and large-scale development of the main road network took place in close connection with the emergence of tourism only after 1850.⁸⁴ However, in the first half of the 19th century, 15 road projects were commenced with a total length of over 260 kilometers.

⁷⁰ Bavier 1878: 112.

⁷¹ Barraud Wiener, Simonett 1990: 421.

⁷² Ibid: 417-418.

⁷³ This includes road connections of cantonal significance between communities and different parts of the cantons. Vgl. Bavier 1878: 59.

⁷⁴ Vgl. Ibid: 62.

⁷⁵ The development of individual accessibilities from 1800 to 1870 registered nationwide the highest rates of growth in eastern Switzerland at Lake Constance, which was caused by the concentration of the road map. Vgl. Flury 2009: 176.

⁷⁶ Vgl. Betschart 2009: 32-34.

⁷⁷ Bavier 1878: 87.

⁷⁸ IVS Baselstadt 2004: 19.

⁷⁹ Ein Jahrhundert Schweizer Bahnen 1947: 30.

⁸⁰ Vgl. Schiedt 2010b: 119.

⁸¹ Schiedt 2010a: 19.

⁸² Muheim 1945: 50.

⁸³ Schiedt 2010a: 14.

⁸⁴ Vgl. Ibid: 11.

The network of communal roads was comprised of 517 kilometers up to 1850.⁸⁵ This shows that road construction activities were rather intense in Lucerne that were still done with the participation of compulsory workers and prisoners.⁸⁶ The road projects executed in the canton of Schwyz can be understood as a reaction to road projects going on in neighboring cantons. The regulatory framework and penetration of official structures were still too weak for coordinated planning and implementation of road projects in the canton of Schwyz. First approaches for a cantonal road law began in 1840, rather late compared with other cantons. Only the cantonal constitution of 1848 created a stable institutional basis for a centralized organization and financing for the road sector.⁸⁷ Despite all this, in the canton of Schwyz, 14 road construction projects with a total length of almost 100 kilometers started in the first half of the 19th century.⁸⁸ In the cantons of Uri, Nidwalden and Obwalden, coordinated actions in road construction matters were small leaving roads in poor quality. Heavy vehicles could navigate on only one third of the land connections in 1801.⁸⁹ Only in the 1860s were these areas made accessible by roads on a greater geographical scale from the north.⁹⁰ Besides the modernization of the Alp pass roads, the Grisons experienced the building of important connecting roads of over 180 kilometers.⁹¹

In various regions of Switzerland, main road networks were developed in the first half of the 19th century, Exceptions were in some parts of Central Switzerland. Because it was already the case with the large transit routes in the 18th century over the Alps, the needs of freight traffic were in the foreground when it came to construction of main roads. However, the spatial scope began to focus on regions within the cantons. The cantonal road laws that were starting to be passed demonstrated the professionalization of the road sector in two ways. First, the increase of employment of skilled staff and the loss of importance for compulsory labor and prisoners provided roads of higher quality. Second, the competencies between the cantonal and communal administrations were closer defined, thus empowering the cantonal administrations as they gained more authority. The cantonal road laws become therefore a substantial part of cantonal politics.⁹² While the transit lines became competitive with commercial river navigation in the 18th century, the main roads had an ambivalent impact on inland shipping. Where waterways and land routes were direct competitors, the road proved itself to be the safer and more reliable means, but where they complemented each other, transportation routes could become more stable and dependable, also with the upgrading of port

⁸⁵ Bavier 1878: 67.

⁸⁶ Vgl. Schiedt 2010a: 16, 18, 20.

⁸⁷ Vgl. Schiedt 2014: 15-18.

⁸⁸ Bavier 1878: 70.

⁸⁹ Vgl. Hoppe 2005: 223.

⁹⁰ Vgl. Bavier 1878: 68, 73-74; Schiedt 2010a: 119.

⁹¹ Schiedt, Stirnimann 2015: 8, 10; Minsch 1980: 38.

⁹² Vgl. Meier 2005: 16-19.

infrastructure and the use of the steamship.⁹³ In Switzerland, the first railways were built in the 1840s, implying that the railway did not shape means of transportation in the first half of the century.

5. Conclusion

The construction and expansion of roads in Switzerland in the 18th and 19th centuries under regional governance happened batch-wise but consequently. First, the Swiss Plateau received a coarse-meshed and large-scale road network that enabled access to abroad in the east, north and west. This network integrated major Swiss towns and allowed direct connections between them. Then, at the beginning of the 19th century, access abroad was also gained in the south with the construction of roads over the Alps. Furthermore, the cantons started to develop their own main road networks to enhance inner regional transport. The costs for building and maintaining roads could be kept low with compulsory labor and the work of prisoners. However, the relevance of unskilled laborers declined with the emergence of more professional road sector management. The emergence of stronger regional state structures was noticeable with the passing of cantonal road laws that clarified the competencies between cantonal and municipal governments. The cantonal governments, however, were thereby entitled to more regulatory power. The Bern authority embraced a leader role in road construction in the 18th century that was linked with its distinct government structures that created the necessary prerequisites. A great deal of the technical knowledge for road construction originated in France. In turn, France initiated construction of the first big alpine pass road over the Simplon mountain. The dominant role of the city of Basel in the traffic system became apparent in two ways. First, it ensured its integration into the road network in the Swiss Plateau by building road passages over the Jura mountains. Second, Basel was the destination of the first railway in Switzerland.

There were various reasons to build roads on a regional level: Actors from the private economy required well-built roads for safe and fast transportation their goods. Foreign governments needed pass roads for military reasons. And cantonal governments were interested in tolls from carriages travelling in their territory as well as in showing their power via elaborate infrastructure projects. The roads were primarily intended for freight traffic—at first instance, on a supra-regional level for transit, and then on a regional level with the main roads. Professional transportation businesses and foreign governments involved themselves with respect to finances and organization in modernizing Alp pass roads, which need to be seen as their economic and strategic incentives. This could help local economies, but it was also an expression of weak central government assertiveness. On a more formal level, the motives for road investments in an economic sense can be seen in two ways: On the one hand, the economic demand provoked the construction of roads. Alfred O. Hirschman called this *development by shortage*. On the other hand, newly built roads should foster economic

⁹³ Similar effects on inland navigation can also be observed in connection with the railway. Vgl. Schiedt 2009: 168.

growth. Hirschman defined this measure *development by excess*.⁹⁴ In Switzerland, both angles for road constructions applied between 1740 and 1850. The high significance of freight transportation and the commitment of various actors imply that geographically narrow and noncommercial mobility behaviors were not decisive for state-run road construction projects. This includes private passenger transport, which did not influence—until today—decision-making about road projects because everyday mobility needs hardly reached beyond the local scope.⁹⁵

6. References

- Barraud Wiener Christine; Simonett Jürg: Zum Bau der "Kunststrassen" im 18. und 19. Jahrhundert. Die Disziplinierung von Landschaft und Bevölkerung. In: Schweizerische Zeitschrift für Geschichte 40 (1990): 415-442.
- Baumann, Gotthilf: Das bernische Strassenwesen bis 1798, Diss. Phil., Sumiswald 1924.
- Baumann, Max: Schiffe, Fuhrwerke und Eisenbahn. Zur Konkurrenz zwischen Fluss- und Landverkehr. In: Schiedt, Hans-Ulrich; Tissot, Laurent; Merki Christoph Maria; Schwinges Rainer C. (Hg.): Verkehrsgeschichte, Zürich 2010: 137-148.
- Bergier, Jean-François: Wirtschaftsgeschichte der Schweiz. Von den Anfängen bis zur Gegenwart, Zürich 1960.
- Betschart, Andres: Der Bodensee: Vom Verkehrsweg zum Verkehrshindernis. In: Wege und Geschichte 2 (2009): 32-34.
- Deschwanden, Peter von: Der Simplon in der napoleonischen Strategie. In: Blätter aus der Walliser Geschichte 29 (1997): 9-51.
- Dienel, Hans-Liudger; Schiedt, Hans-Ulrich: Einleitung in die Geschichte der modernen Strasse. In: dies. (Hg.): Die moderne Strasse. Planung, Bau und Verkehr vom 18. bis zum 20. Jahrhundert, Frankfurt am Main 2010: 7-10.
- Dubler, Anne-Marie: Geschichte der Luzerner Wirtschaft. Volk, Staat und Wirtschaft im Wandel der Jahrhunderte, Luzern 1983.
- Ein Jahrhundert Schweizer Bahnen, 1847-1947. Jubiläumswerk des Eidgenössischen Post- und Eisenbahndepartementes. Band I: Allgemeines – Geschichte – Finanzen – Statistik – Personal, Frauenfeld 1947.
- Flückiger Strebel, Erika; Schiedt, Hans-Ulrich: Die Strassengeschichte des Kantons Bern vom 19. Jahrhundert bis in die Gegenwart, Bern 2011.
- Flückiger, Daniel: Administratives Machtstreben? Strassenunterhalt und Verwaltung im Kanton Bern, 1803-1846. In: Schiedt, Hans-Ulrich; Tissot, Laurent; Merki Christoph Maria; Schwinges Rainer C. (Hg.): Verkehrsgeschichte, Zürich 2010: 169-178.
- Flückiger, Daniel: Strassen für alle. Infrastrukturpolitik im Kanton Bern 1790-1850, Diss. Phil., Baden 2011.

⁹⁴ Vgl. Hirschman 1960: 86-89.

⁹⁵ Transports in connection with agricultural activities were of particular importance for the direct spatial surroundings. Vgl. Schiedt 2005: 4.

- Flury, Philipp: Verkehr und Raumentwicklung zwischen Kunststrassen- und Eisenbahnbau. Eine digitale Analyse von Erreichbarkeiten und Raumstrukturen in der Schweiz des 19. Jahrhunderts, Diss. Phil., Bern 2009.
- Hirschman, Albert O.: The Strategy of Economic Development, New Haven ³1960.
- Hoppe, Peter: Das innerschweizerische Strassen- und Wegnetz im Jahr 1801. Eine Auswertung der helvetischen Strassenklassierung im Kanton Waldstätten. In: Der Geschichtsfreund. Mitteilungen des Historischen Vereins Zentralschweiz 158 (2005): 211-249.
- Inventar historischer Verkehrswege (IVS): Historische Verkehrswege im Kanton Basel-Stadt, Bern 2004, http://www.ivs.admin.ch/images/dienstleistungen/downloads/kantonshefte/PDF/bs_kantonsheft.pdf, 12.09.2016.
- Inventar historischer Verkehrswege: Les chemins historiques du canton de Genève, Bern 2007, http://www.ivs.admin.ch/images/dienstleistungen/downloads/kantonshefte/PDF/ge_kantonsheft.pdf, 12.09.2016.
- Inventar historischer Verkehrswege: Les chemins historiques du canton de Vaud, Bern 2003, http://www.ivs.admin.ch/images/dienstleistungen/downloads/kantonshefte/PDF/vd_kantonsheft.pdf, 12.09.2016.
- Kraus, Susanne; Jäger, Georg: Die Commercialstrasse über den Splügenpass, Glarus 2013.
- Merki, Christoph Maria; Schiedt, Hans-Ulrich: Strassenverkehrsgeschichte. Endlich etwas ins Rollen bringen. In: Traverse, Zeitschrift für Geschichte 6/2 (1999): 11-13.
- Meyer, Lukas: Der Ärger der Kantone mit den Gemeinden. In: Wege und Geschichte 2 (2005): 16-19.
- Minsch, Hans: Das Talglicht: die Verkehrsgeschichte Graubündens, Werdegang der Post und Eisenbahnen im kaleidoskopischen Wechsel sowie buntes Allerlei, Klosters 1980.
- Moor, Reto: Ausbau der Bahn-und Strasseninfrastruktur am Gotthard von 1850 bis 2004, Diplomarbeit Universität Zürich 2004.
- Muheim, Hans: Die Strassenbau-Politik des Kantons Uri, Diss. Iur., Zürich 1945.
- Nething, Hans-Peter: Der Gotthard. Eine Pass- und Verkehrsgeschichte, Thun 1995.
- Reinhard, Raphael: Pässe und Strassen in den Schweizer Alpen. Topographisch-historische Studien, Luzern 1903.
- Schiedt, Hans-Ulrich (1999a): Wegnetze und Mobilität im Ancien Régime. In: Schweizerische Zeitschrift für Geschichte 49 (1999): 16-34. (=Schiedt 1999a)
- Schiedt, Hans-Ulrich (1999b): Trampelpfade und Chausseen. Literaturbericht einer strassenbezogenen Verkehrsgeschichte. In: Traverse, Zeitschrift für Geschichte 6/2 (1999b): 17-35. (=Schiedt 1999b)
- Schiedt, Hans-Ulrich: Binnenseen in der Schweiz als Verkehrsräume im Zeitraum zwischen dem 18. und dem 20. Jahrhundert. In: Egli, Hans-Rudolf; Schenk, Winfried (Hg.): Seen als Siedlungs-, Wirtschafts- und Verkehrsräume, Bonn 2009: 163-183.
- Schiedt, Hans-Ulrich: Die Entwicklung der Strasseninfrastruktur in der Schweiz zwischen 1740 und 1910. In: Jahrbuch für Wirtschaftsgeschichte 1 (2007): 39-54.
- Schiedt, Hans-Ulrich: Die Strassengeschichte des Kantons Luzern im 19. und 20. Jahrhundert, Kriens 2010. (=Schiedt 2010a)

Schiedt, Hans-Ulrich: Die Strassengeschichte des Kantons Schwyz vom 19. Jahrhundert bis in die Gegenwart, Schwyz 2014.

Schiedt, Hans-Ulrich: Entstehung der Verkehrslandschaft. In: Mathieu, Jon; Backhaus, Norman; Hürlimann, Katja; Bürgi, Matthias (Hg.): Geschichte der Landschaft in der Schweiz. Von der Eiszeit bis zur Gegenwart, Zürich 2016: 159-174.

Schiedt, Hans-Ulrich: Landwirtschaft – ein Transportgewerbe (nicht nur) wider Willen. In: Wege und Geschichte 1 (2005): 4-11.

Schiedt, Hans-Ulrich: Verkehrswege, Verkehrsbedingungen und Verkehrskapazitäten in der Zentralschweiz im ausgehenden 18. und im 19. Jahrhundert. In: Der Geschichtsfreund. Mitteilungen des Historischen Vereins Zentralschweiz 163 (2010): 109-135. (=Schiedt 2010b)

Schiedt, Hans-Ulrich; Stirnimann, Peter: Die Strassengeschichte des Kantons Graubünden vom 19. Jahrhundert bis in die Gegenwart, Chur 2015.

Strassenverkehrszählung 2005, <http://www.portal-stat.admin.ch/ssvz/docs/208-0500.pdf>, 12.09.2016.